

LDJ

11/30/04

Rule
1.126

- 1 1. A video mail server comprising:
 - 2 a video call signaling module coupled to an internet protocol network via an
 - 3 internet protocol services module for:
 - 4 establishing a first internet protocol channel with a caller remote internet
 - 5 video device to support a recording session over the internet protocol network; and
 - 6 establishing a second internet protocol channel with a user remote internet
 - 7 video device to support a playback session over the internet protocol network;
 - 8 a media interface coupled to the internet protocol network via the internet
 - 9 protocol services module and comprising:
 - 10 a recording module for obtaining a recording sequence of compressed
 - 11 images representing motion video from the caller remote internet video device and
 - 12 storing a video mail file representing the recording sequence of compressed images in a
 - 13 storage; each compressed image frame within the video mail file being one of:
 - 14 an independent frame from which a video image frame can be
 - 15 recovered utilizing only the independent frame; and
 - 16 a dependent frame from which the video image frame can only be
 - 17 recovered utilizing both the dependent frame and an independent frame preceding the
 - 18 dependent frame in the sequence;
 - 19 a play back module for retrieving the video mail file and transferring
 - 20 contents of the video mail file as the playback sequence of compressed images to the
 - 21 user remote internet video device.

- 1 2. The video mail server of claim 1, further comprising:
 - 2 a video codec coupled to the media interface and comprising a decoder module
 - 3 and an encoder module;
 - 4 the decoder module:
 - 5 receiving the recording sequence of compressed images from the
 - 6 recording module; and

7 decoding the recording sequence of compressed images to generate
8 motion video images;
9 the encoder module:
10 encoding the motion video images into the playback sequence of
11 compressed images, the playback sequence of compressed images being in a robust
12 format that requires that at least one independent frame be included within each fixed
13 time duration; and
14 transferring the playback sequence of compressed images to the media
15 interface for storing as the video mail file.
16

1 3. The video mail server of claim 2, wherein
2 wherein the robust format requires that the duration of time between each
3 independent frame be a fixed period of time on the order of one second.
4

1 4. The video mail server of claim 1:
2 wherein the video mail file comprises the recording sequence of compressed
3 images; and
4 wherein the video mail server further comprises:
5 a video codec coupled to the media interface and comprising a decoder
6 module and an encoder module, the decoder module:
7 receiving the recording sequence of compressed images from the
8 playback module;
9 decoding the recording sequence of compressed images to generate
10 motion video images; and
11 the encoding module:
12 generating the playback sequence of compressed images; and
13 transferring the playback sequence of compressed images to the media
14 interface for transferring to the user remote internet device.
15

1 5. The video mail server of claim 4:

Rule
1.126

Rule
1,126

2 wherein the playback sequence of compressed images is in a robust format that
3 requires that at least one independent frame be included within each fixed time
4 duration.

5
1 6. The video mail server of claim 5, wherein the robust format requires that the
2 duration of time between each independent frame be a fixed period of time on the order
3 of one second.

1 7. The video mail server of claim 4, wherein:
2 the playback module receives a lost frame message from the user remote
3 internet video device when the user remote internet video device detects loss of a frame
4 within the playback sequence of compressed images; and
5 video codec:
6 compresses a next image frame of the motion video images as an
7 independent frame in response to the playback module receiving a lost frame message
8 ; and
9 includes the next image frame in the playback sequence of compressed
10 images.

11
1 8. The video mail server of claim 1:
2 wherein the video mail file comprises the recording sequence of compressed
3 images;
4 wherein the video mail server further comprises:
5 a video codec coupled to the media interface and comprising a decoding
6 module and an encoding module, the decoding module:
7 receiving the recording sequence of compressed images from the
8 playback module;
9 decoding the recording sequence of compressed images to generate
10 motion video images; and
11 queuing each motion video image for encoding, by the encoding module,

Rule
1.126

12 as a lost frame correction frame; and
13 wherein the playback module comprises
14 a delay buffer for delaying the playback sequence of compressed images
15 for a period of time such that each frame within the playback sequence of compressed
16 images is queued for sending to the user remote internet device at a time that
17 corresponds to the motion video image queued for encoding by the encoding module as
18 a lost frame correction frame such that a lost frame correction frame may be substituted
19 for a frame in the playback sequence of compressed images in response to receiving an
20 lost frame message.

1 9. The video mail server of claim 1, wherein:
2 wherein the call signaling module establishes the second internet protocol
3 channel over a TCP/IP connection;
4 the internet protocol services module operates TCP/IP protocols to effect re-
5 transmission of any lost TCP/IP frames on the second TCP/IP connection; and
6 and the playback sequence of compressed images is the same as recording
7 sequence of compressed images.

1 10. The video mail server of claim 9, wherein:
2 wherein the call signaling module further establishes first internet protocol
3 channel over a TCP/IP connection; and
4 the internet protocol services module further operates TCP/IP protocols to effect
5 re-transmission of any lost TCP/IP frames on the first TCP/IP connection; and
6

1 11. The video mail server of claim 1:
2 wherein the call signaling module establishes the first internet protocol channel
3 over a TCP/IP connection and establishes the second internet protocol channel over a
4 UDP/IP channel;
5 wherein the internet protocol services module operates TCP/IP protocols to effect
6 re-transmission of any lost TCP/IP frames on the first internet protocol channel;
7 wherein the video mail file comprises the recording sequence of compressed

Art Unit: ~~2455~~ 2124

Rule
1.126.

- 8 images: and
- 9 wherein the video mail server further comprises:
- 10 a video codec coupled to the media interface and comprising a decoder
- 11 module and an encoder module, the decoder module:
- 12 receiving the recording sequence of compressed images from the
- 13 playback module;
- 14 decoding the recording sequence of compressed images to generate
- 15 motion video images;
- 16 generating the playback sequence of compressed images; and
- 17 transferring the playback sequence of compressed images to the media
- 18 interface for transferring to the user remote internet device.
- 19
- 1 12. The video mail server of claim 11, wherein the playback sequence of
- 2 compressed images is in a robust format that requires that at least one independent
- 3 frame be included within each fixed time duration.
- 1 13. The video mail server of claim 12, wherein the robust format requires that the
- 2 duration of time between each independent frame be a fixed time interval on the order
- 3 of one second.
- 4
- 1 14. The video mail server of claim 11, wherein:
- 2 the playback module receives a lost frame message from the user remote
- 3 internet video device when the user remote internet video device detects frame loss;
- 4 and
- 5 the video codec:
- 6 compresses a next image frame of the motion video images as an
- 7 independent format in response to the playback module receiving a lost frame
- 8 message; and
- 9 includes the next image frame in the playback sequence of compressed
- 10 images.

- 1 15. The video mail server of claim 1:
2 wherein the call signaling module establishes the first internet protocol channel
3 over a TCP/IP connection and to establish the second internet protocol channel over a
4 UDP/IP channel;
5 wherein the internet protocol services module operates TCP/IP protocols to effect
6 re-transmission of any lost TCP/IP frames on first TCP/IP connection;
7 wherein the video mail file comprises the recording sequence of compressed
8 images;
9 wherein the video mail server further comprises a video codec coupled to the
10 media interface and comprising a decoder module and an encoder module;
11 the decoder module:
12 receiving the recording sequence of compressed images from the
13 playback module;
14 decoding the recording sequence of compressed images to generate
15 motion video images;
16 queuing each motion video image for encoding as an error correction
17 frame; and
18 wherein the playback module comprises:
18 wherein the playback module comprises:
19 a delay buffer for delaying the playback sequence of compressed images
20 for a period of time such that each frame within the playback sequence of compressed
21 images is queued for sending to the user remote internet device at a time that
22 corresponds to the video image frame queued for encoding by the encoding module as
23 a lost frame correction frame such that the lost frame correction frame may be
24 substituted for a frame in the playback sequence of compressed images in response to
25 receiving a lost frame message.
26
- 1 16. A method of recording and playing back video mail, the method comprising:
2 establishing a first internet protocol channel with a caller remote internet video
3 device to support a recording session over the internet protocol network;

Rule
1.126

4 establishing a second internet protocol channel with a user remote internet video
5 device to support a playback session over the internet protocol network;
6 obtaining a recording sequence of compressed images from the caller remote
7 internet video device;
8 storing a video mail file representing the recording sequence of compressed
9 images in a storage; each compressed image frame within the video mail file being one
10 of:
11 an independent frame from which an image frame can be recovered
12 utilizing only the independent frame; and
13 a dependent frame from which the image frame can only be recovered
14 utilizing both the dependent frame and an independent frame preceding the dependent
15 frame in the sequence;
16 retrieving the video mail file and transferring contents of the video mail file as the
17 playback sequence of compressed images to the user remote internet video device.

1 17. The method of claim 16, further comprising:

2 decoding the recording sequence of compressed images to generate motion
3 video images;

4 encoding the motion video images into the playback sequence of compressed
5 images, the playback sequence of compressed images being in a robust format that
6 requires that at least one independent frame be included within each fixed time
7 duration; and

8 storing the playback sequence of compressed images as the video mail file.
9

1 18. The method of claim 17, wherein the robust format requires that the duration of
2 time between each independent frame be a fixed period of time on the order of one
3 second.

1 19. The method of claim 16 wherein:

2 the video mail file comprises the recording sequence of compressed images; and

Rule
1.126

Art Unit: ~~2455~~ 2124

Rule
1.126

3 the method further comprises:
4 decoding the recording sequence of compressed images to generate
5 motion video images; and
6 encoding the motion video images to generating the playback sequence of
7 compressed images; and
8 transferring the playback sequence of compressed images to the user
9 remote internet device.

10

1 20. The method of claim 19, wherein the playback sequence of compressed images
2 comprises is in a robust format that requires that at least one independent frame be
3 included within each fixed time duration.

4

1 21. The method of claim 20, wherein the robust format requires that the duration of
2 time between each independent frame be a fixed period of time on the order of one
3 second.

1 22. The method of claim 19, further comprising:
2 receiving a lost frame message from the user remote internet video device when
3 the user remote internet video device detects loss of a frame within the playback
4 sequence of compressed images;
5 compressing a next image frame of the motion video images as an independent
6 frame in response to receiving an lost frame message; and
7 including the next image frame in the playback sequence of compressed images.

8

1 23. The method of claim 16, wherein:
2 the video mail file comprises the recording sequence of compressed images; and
3 the method further comprises:
4 decoding the recording sequence of compressed images to generate
5 motion video images;
6 queuing each motion video image for encoding as a lost frame correction

7 frame; and

8 delaying the playback sequence of compressed images for a period of
9 time such that each frame within the playback sequence of compressed images is
10 queued for sending to the user remote internet device at a time that corresponds to the
11 motion video image queued for encoding as a lost frame correction frame such that an
12 lost frame correction frame may be substituted for a frame in the playback sequence of
13 compressed images in response to receiving an lost frame message.

14

1 24. The method of claim 16, wherein the method further includes:

2 establishing each of the second internet protocol channel over a TCP/IP
3 connection; and

4 and the playback sequence of compressed images is the same as recording
5 sequence of compressed images.

6

1 25. The method of claim 24, wherein the method further includes:

2 establishing each the first internet protocol channel over a TCP/IP connection.

1 26. The method of claim 16, wherein :

2 the video mail file comprises the recording sequence of compressed images; and
3 the method further includes:

4 establishing the first internet protocol channel over a TCP/IP connection
5 and establishing the second internet protocol channel over a UDP/IP channel;

6 decoding the recording sequence of compressed images from the video
7 mail file to generate motion video images;

8 encoding the motion video images to generate the playback sequence of
9 compressed images; and

10 transferring the playback sequence of compressed images to the user
11 remote internet device.

12

1 27. The method of claim 26, wherein the playback sequence of compressed images

Rule
1.126

Art Unit: ~~2455~~ 2124

2 is in a robust format that requires that at least one independent frame be included within
3 each fixed time duration.

1 28. The method of claim 27, wherein the robust format requires that the time duration
2 between each independent frame be a fixed period of time on the order of one second.
3

1 29. The method of claim 26, wherein the method further comprises:
2 receiving a lost frame message from the user remote internet video device when
3 the user remote internet video device detects loss of a frame within the play back
4 sequence of compressed images;
5 compressing a next image frame in the sequence of motion video images as an
6 independent frame in response to receiving an lost frame message; and
7 including the next image frame in the play back sequence of compressed
8 images.

1 ~~30~~
2 ~~31~~. The method of claim 16 wherein:
3 the video mail file comprises the recording sequence of compressed images; and
4 the method further comprises:
5 establishing the first internet protocol channel over a TCP/IP connection and to
6 establish the second internet protocol channel over a UDP/IP channel;
7 decoding the recording sequence of compressed images to generate motion
8 video image;
9 queuing each motion video image for encoding as a lost frame correction frame;
10 and
11 delaying the playback sequence of compressed images for a period of time such
12 that each frame within the playback sequence of compressed images is queued for
13 sending to the user remote internet device at a time that corresponds to the motion
14 video image queued for encoding as a lost frame correction frame such that an lost
15 frame correction frame may be substituted for a frame in the playback sequence of
compressed images in response to receiving an lost frame message.

Rule
1.126